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**EFFECTS OF PETROLEUM FISCAL REGIMES AND  
TAX INSTRUMENTS ON THE INVESTMENT  
CLIMATE OF MARGINAL OIL FIELDS IN MALAYSIA**



**DOCTOR OF PHILOSOPHY  
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January, 2016**

**EFFECTS OF PETROLEUM FISCAL REGIMES AND TAX INSTRUMENTS  
ON THE INVESTMENT CLIMATE OF MARGINAL OIL FIELDS IN  
MALAYSIA**



**Thesis Submitted to  
School of Accountancy,  
Universiti Utara Malaysia,  
In Fulfillment of the Requirement for the Degree of Doctor of Philosophy**



SCHOOL OF ACCOUNTANCY  
COLLEGE OF BUSINESS  
Universiti Utara Malaysia

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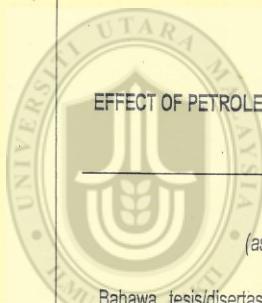
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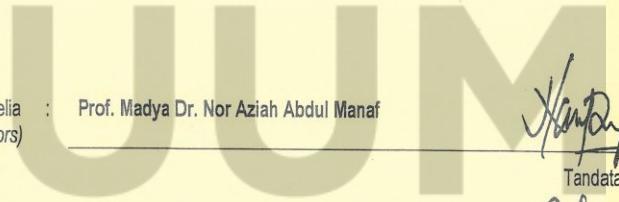
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## Abstract

Primarily, this study examines the effect of 2010 fiscal regime changes on the investment climate of marginal oil fields in Malaysia. The study also explores the effect fiscal regime changes on investors' capital expenditure (CAPEX) performance. It also investigates the relationship between tax instruments (types of profit-based tax, types of fiscal arrangement, crypto-based tax, production-based tax and tax incentives) and the investment climate of marginal oil fields as well as the moderating effect of an attractive petroleum fiscal regime on that relationship. Scenario analysis was used in examining the effect of 2010 fiscal regime changes on the investment climate of marginal oil fields. Trend analysis was employed in investigating the effect of fiscal regime changes on investors' CAPEX performance. Lastly, Partial Least Square (PLS) path modeling was used in examining the relationship between tax instruments and the investment climate of marginal oil fields as well as the moderating effect of an attractive petroleum fiscal regime. Findings from the scenario analysis showed that the investment climate of marginal oil fields improved after 2010 fiscal regime changes for low oil prices, mixed findings for medium oil price, however, the investment climate would have been better under old regime for high oil price scenarios. Investors' CAPEX performance increased significantly after the fiscal regime changes. Moreover, the finding shows that a petroleum profit tax, production-sharing contracts, and tax incentives had a significant positive relationship with the investment climate of marginal oil fields, but that the crypto-based tax and production-based tax had significant negative relationships. However, no significant relationship was established for the brown tax and the pure service contract. Furthermore, it was found that an attractive petroleum fiscal regime significantly moderated the relationship of the brown tax, production-based tax, and tax incentives with the investment climate of marginal oil fields. However, no significant moderating effects of an attractive petroleum fiscal regime was established with respect to the crypto-based tax, petroleum income tax, production sharing contract, pure service contract. In line with these findings, practical, methodological and theoretical implications were highlighted, the study's limitations were discussed, and suggestions for future studies were offered.

**Keywords:** investment climate, marginal oil fields, petroleum fiscal regime, tax instruments

## Abstrak

Kajian ini secara khususnya menyelidik kesan perubahan aliran fiskal 2010 ke atas iklim pelaburan medan minyak marginal di Malaysia. Kajian ini juga meninjau kesan perubahan aliran fiskal ke atas prestasi perbelanjaan modal (CAPEX) pelabur. Seterusnya, kajian ini menyelidik hubungan di antara instrumen cukai (jenis-jenis cukai berasaskan keuntungan, jenis susunan fiskal, cukai berasaskan kripto, cukai berasaskan pengeluaran dan insentif cukai) dan iklim pelaburan medan minyak marginal di Malaysia. Akhir sekali, kajian ini turut mengkaji kesan pengantara rejim fiskal petroleum dalam hubungan antara instrumen cukai dan iklim pelaburan medan minyak marginal. Analisis senario digunakan dalam meneliti kesan perubahan aliran fiskal 2010 ke atas iklim pelaburan medan minyak marginal. Analisis *trend* digunakan dalam mengkaji kesan perubahan aliran fiskal ke atas prestasi CAPEX pelabur. Akhirnya, model *Partial Least Square (PLS)* digunakan untuk mengkaji hubungan di antara instrumen cukai dan iklim pelaburan medan minyak marginal serta kesan pengantara rejim fiskal petroleum. Dapatan kajian daripada analisis senario menunjukkan bahawa iklim pelaburan bagi medan minyak marginal bertambah baik selepas perubahan aliran fiskal 2010 bagi senario harga minyak yang rendah. Dapatan kajian juga menunjukkan bahawa iklim pelaburan bagi senario harga minyak sederhana adalah bercampur selepas perubahan aliran fiskal 2010; manakala iklim pelaburan adalah lebih baik di bawah aliran fiskal sebelum 2010 bagi senario harga minyak yang tinggi. Prestasi CAPEX pelabur meningkat dengan ketara selepas perubahan aliran fiskal. Selain itu, dapatan kajian menunjukkan bahawa cukai keuntungan petroleum, kontrak perkongsian pengeluaran, dan insentif cukai mempunyai hubungan positif yang signifikan dengan iklim pelaburan medan minyak marginal tetapi bagi cukai yang berasaskan kripto dan cukai berasaskan pengeluaran, wujud hubungan negatif yang signifikan. Walau bagaimanapun, tiada hubungan yang signifikan dibangunkan bagi cukai *brown* dan kontrak perkhidmatan asas. Tambahan pula, dapatan menunjukkan bahawa aliran fiskal petroleum menjadi pengantara dalam hubungan cukai *brown*, cukai berasaskan pengeluaran dan insentif cukai dengan iklim pelaburan medan minyak marginal. Walau bagaimanapun, tiada kesan pengantara yang signifikan ditunjukkan dalam aliran fiskal petroleum yang berkaitan dengan cukai berdasarkan kripto, cukai pendapatan petroleum, kontrak perkongsian pengeluaran, kontrak perkhidmatan asas, dan iklim pelaburan medan minyak marginal. Selaras dengan penemuan ini, implikasi praktikal, metodologi dan teori telah diketengahkan. Limitasi kajian turut dibincangkan dan cadangan untuk kajian masa hadapan disarankan.

**Kata kunci:** iklim pelaburan, medan minyak marginal, aliran fiskal petroleum, instrumen cukai

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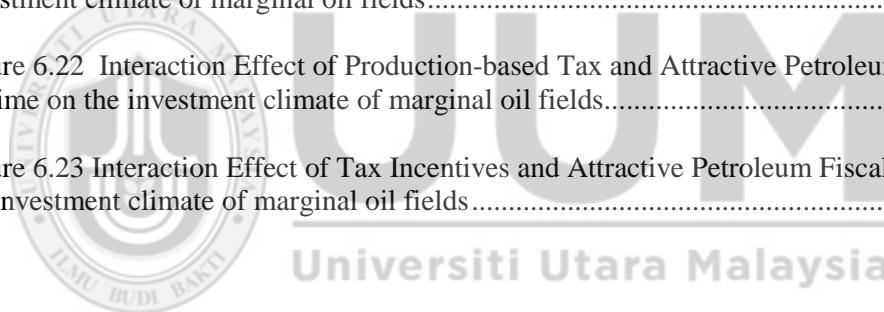
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## **List of Abbreviations**

AGR	Access to Gross Revenue
ANOVA	Analysis of Variance
APRT	Advanced Petroleum Revenue Tax
AVE	Average Variance Extracted
BT	Brown Tax
BOE	Barrels of Oil Equivalents
CAPEX	Capital Expenditure
CCGP	Coordinating Committee on Geosciences Program
CIT	Company Income Tax
EFA	Exploratory Factor Analysis
FRGS	Fundamental Research Grant Scheme
FIRS	Federal Inland Revenue Service
FOC	Foreign Oil Company
FTF	First Tranche Petroleum
GDP	Gross Domestic Product
GoF	Goodness of Fit
GT	Government Take
IT	Investor Take
IRR	Internal Rate of Return
JV	Joint Venture
LNG	Liquefied Natural Gas

MIDA	Malaysia Investment Development Authority
MoU	Memorandum of Understanding
MPRC	Malaysia Petroleum Resources Corporation
NCF	Net Cash Flow
NOC	National Oil Company
NNPC	Nigerian National Petroleum Corporation
NPV	Net Present Value
OGC(s)	Oil and Gas Company (ies)
OL	Operating Leverage
OPEX	Operating Expenditure
PETRONAS	Petroliam Nasional Berhad
PI	Profitability Index
PIT	Petroleum Income Tax
PLS	Partial Least Squares
POC	Private Oil Company
PPT	Petroleum Profit Tax
PRT	Petroleum Revenue Tax
PSC	Production Sharing Contract
QCE	Qualifying Capital Expenditure
R/C	Revenue over Cost
RoR	Rate of Return
RRT	Resource Rent Tax
RSC	Risk Service Contract

R/T	Royalty/Tax
RWT	Revenue Windfall Tax
SC	Service Contract
SEM	Structural Equation Modeling
SI	Saving Index
SPD	Supplementary Petroleum Duty
SRMR	Standardized Root Mean Squared
TCF	Trillion Cubic Feet
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
US	United States
USD	United States Dollar
VAT	Value Added Tax
VIF	Variance Inflation Factor

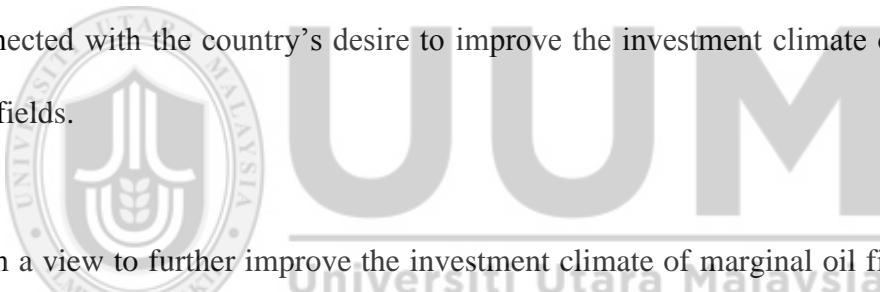


## CHAPTER ONE

### INTRODUCTION

#### 1.1 Introduction

Oil and gas industry in Malaysia has been experiencing series of adjustments in petroleum fiscal policies. These adjustments started in 1974 when Petroleum Development Act was promulgated, which not only led to the abolishment of the concessionary fiscal system but also paved way for the introduction of Production Sharing Contracts (PSC). The PSC itself had undergone several adjustments, which ranges from PSC of 1976, PSC of 1985, deepwater PSC of 1993, and finally to Revenue over Cost (R/C) factor PSC of 1998. The aforementioned changes may be connected with the country's desire to improve the investment climate of its oil and gas fields.



With a view to further improve the investment climate of marginal oil fields through improving rate of return to investors, the Malaysian government introduced a new fiscal regime in November 2010 (Faizli, 2012; Jaipuriyar, 2013). This regime changed the fiscal arrangement of marginal oil fields from the PSC to the Risk Service Contract (RSC) and introduced additional tax incentives. This development eventually led to the amendment of Petroleum Development Act in 2011. The tax incentives included: (1) a reduced tax rate from 38% to 25% of chargeable profit; and (2) an accelerated capital allowance from 10 to 5 years. Other provisions included: (3) a waiver of export duty on oil produced and exported by marginal oil fields operators; (5) an investment tax allowance of 60%-100% on Qualifying Capital

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## Appendix A

### Research Questionnaire



### RESEARCH QUESTIONNAIRE

**Dear Respondent,**

Congratulations for being selected as a respondent for this study. The basis of your selection is your expertise in oil-and- gas accounting; taxation; and or finance related discipline, and your contributions to the development of the Malaysian Oil and Gas Industry in Malaysia.

For your information, this fundamental research project is funded by Malaysian government and undertaken by researchers at Universiti Utara Malaysia. The topic of the research is **“Is a New Fiscal Framework Required to Improve the Investment Climate of Marginal Oil Fields in Malaysia?** The aim of the study is to examine the effect of tax instruments on the investment climate of marginal oil fields in Malaysia.

The questionnaire will take approximately 20 minutes to complete. Your objective response would be highly appreciated as it will contribute immensely in generating reliable evidence that can assist in petroleum tax policy formulation and eventually will support the industry, government and practitioners in taking informed decisions on this important economic development issue. Please rest assured that your response will be treated with utmost confidentiality, as it will exclusively be used for academic purposes.

For enquiries relating to the research please contact any of the following:

#### Research Leader

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